

# **Exhibit D**

**Sent:** Monday, October 14, 2019 10:18:23 AM  
**To:** Kira Rasmussen <KRasmussen@idahoan.com>  
**Subject:** ROI Slides  
**Attachments:** Idahoan Meeting 101719.pptx

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Hi Kira,

If you can send me your ROI slides, I'll add them to the presentation. If you think we need to adjust the presentation, let me know.

Thanks!

Rachael Glenister  
Technical Sales Manager

Mobile: (203) 482-1487  
Office: (203) 740-2999

a KPM Analytics company

**P** Consider the environment before printing this e-mail

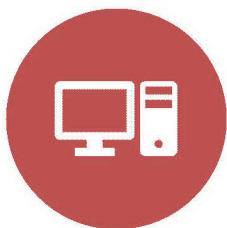
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# Idahoan Foods NIR Implementation

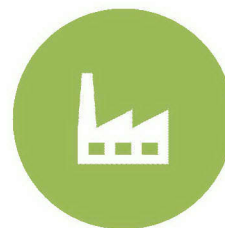




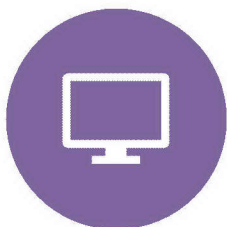
# Agenda



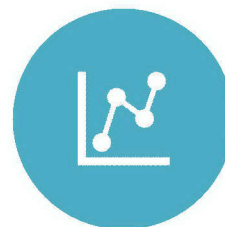
NIR Technology  
Overview



Industry Use



SpectraStar XT  
Intro



Idahoan Data  
Review



ROI



Q&A





# What is NIR Technology?

Rapid and non-destructive secondary method of analysis using near infrared light to detect absorbances mainly from molecules with bound hydrogen atoms such as Moisture, Fat, Protein, etc.

# How it Works




Product: Puppy Chow  
Cup Type: Powder Cup

Property	Value	SD	ND
Moist	1.75	2.68	1.12
Starch	2.15	1.91	0.94
Protein	0.56	0.45	0.16
Thiobarbituric	1.13	2.45	0.46
ADF	10.55	1.78	0.81
NDF	11.13	2.12	0.96

Sample Information  
Current Sample: Puppy Chow  
Container: Canister  
Scan Number: 05/01/2023 10:00:12  
File Number: 26-112  
Temperature: 22.0  
Condition: 01

Image

Detector  
+  
Processor

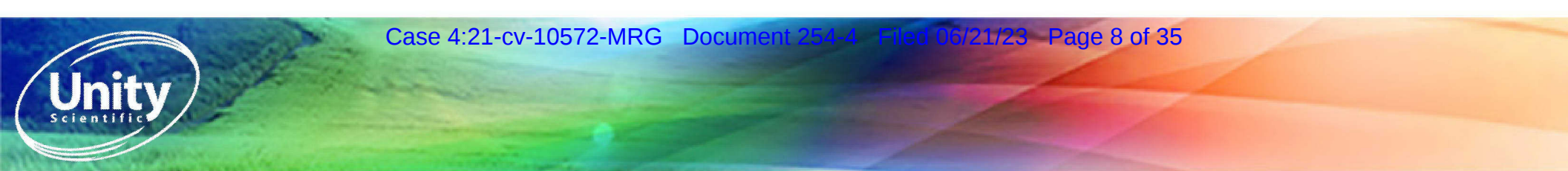
Data

Results



# Benefits of NIR

- Fast and Accurate Results in 30 Seconds
- Simple Routine Operation
- Easy Sample Preparation
- Instant Multi-Constituent Analysis
- Non-destructive/Safe
- Repeatable and Reproducible



# Industry Use



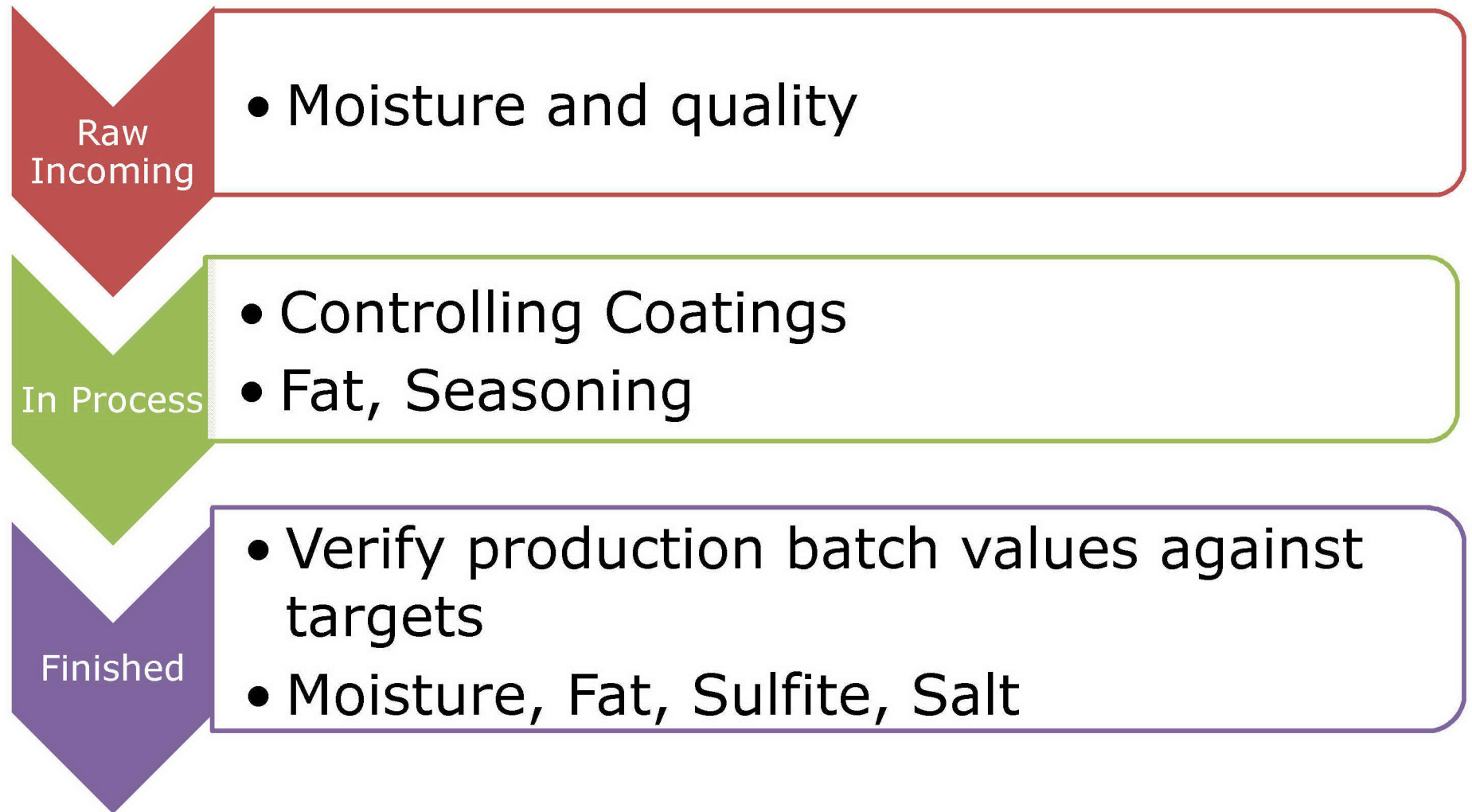


# Who We Work With





# Where is NIR Used in the Plant?





# **SpectraStar XT Series**





# SpectraStar XT Series

- Completely new and updated system
  - TAS Calibrated
  - Re-designed hardware
  - New UScan software





# TAS™

- Total Alignment Spectrometer
- TAS is a patented method for calibrating and maintaining instruments using primary, NIST traceable standards
- A set of 3 TAS standards is measured on your instrument in the factory and at install
- TAS can be run at any time to recalibrate and align your instrument back to “factory specification”



- Automatically recalibrates instrument back to factory spec to maintain calibration performance
- Automatically diagnosis and fixes any instrument alignment issue
- Returns instrument to factory spec after a lamp change or service
  - No bias adjustment required for your calibrations
- TAS calibrated instruments are very alike for ease in calibration transfer
- As all Unity instruments will be TAS calibrated, your data is **Future Proof**
  - Can be easily transferred across systems and models



# SpectraStar XT Hardware





# Hardware

- Built-in PC
  - Modern, Fast Intel PC Board
    - 8 GB RAM
  - Windows 7 Embedded Operating System
    - 64 bit OS
  - Solid State Hard Drive (no moving parts)
    - 220 GB Storage
  - 17 inch high resolution monitor
  - 4 USB ports
- Benefits
  - Fast operation and prediction times
  - Analysis time still under 30 seconds
  - Faster boot-up time
  - Current operating system





# New Hardware Features

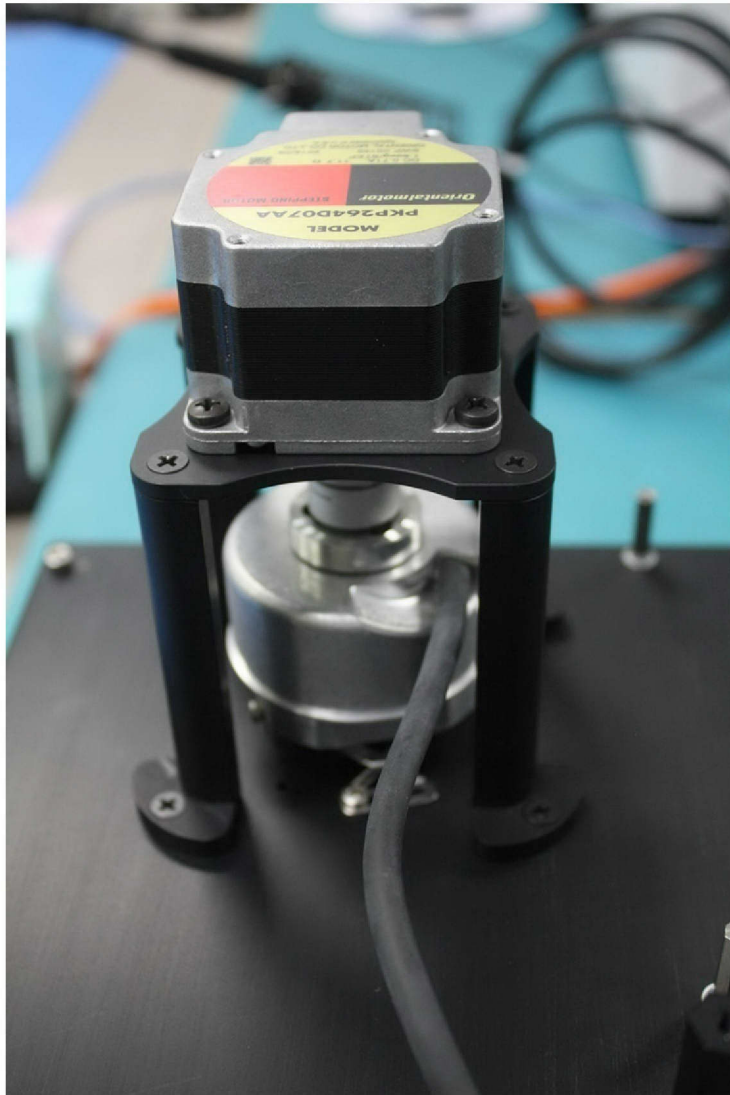
- **All parts are of the highest quality and state of the art made in the USA, Germany, or Japan**
- New high performance detector electronics
  - Ultra Cooled, dual stage InGaAs
  - Very low noise
  - Automatic gain adjustment
- New main controller (mother) board
  - Modern design, powerful
  - Self diagnosing
- New powerful and rugged grating drive motor
  - Aerospace quality bearings



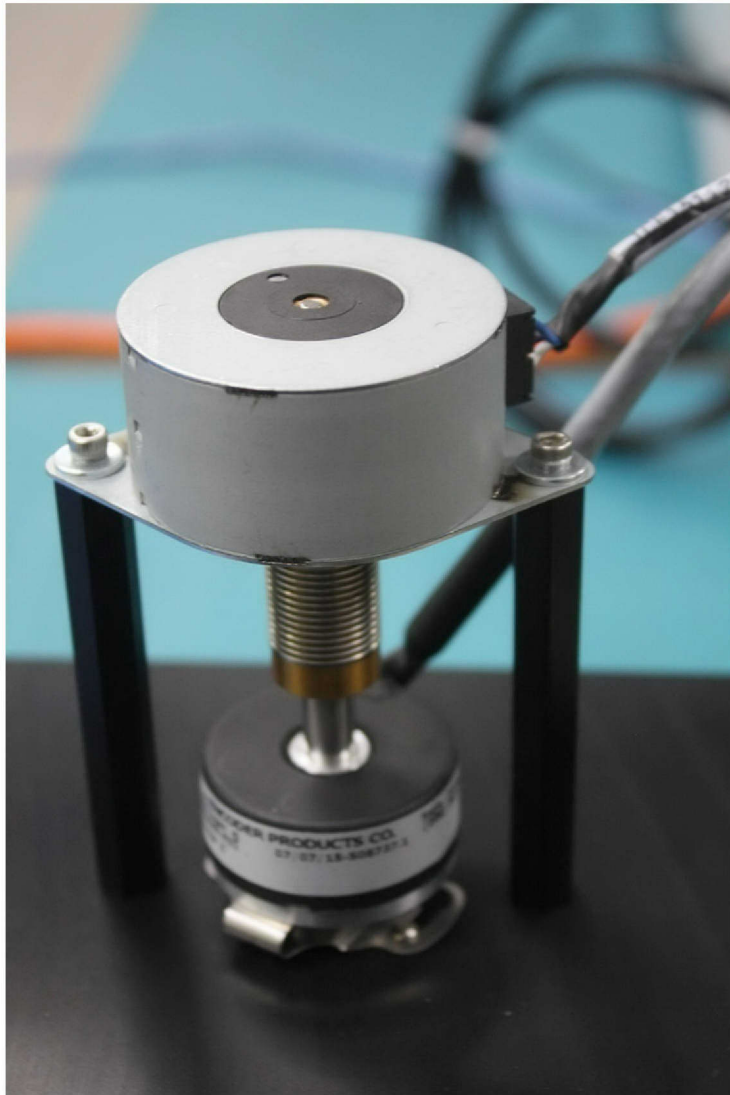
# New Hardware Features

- New high resolution encoder for extremely accurate and precise wavelength registration
  - Self aligning using TAS first principles
- Made in the USA with highest quality components
- Highest quality optics for **100% transmission of light through the system**





New

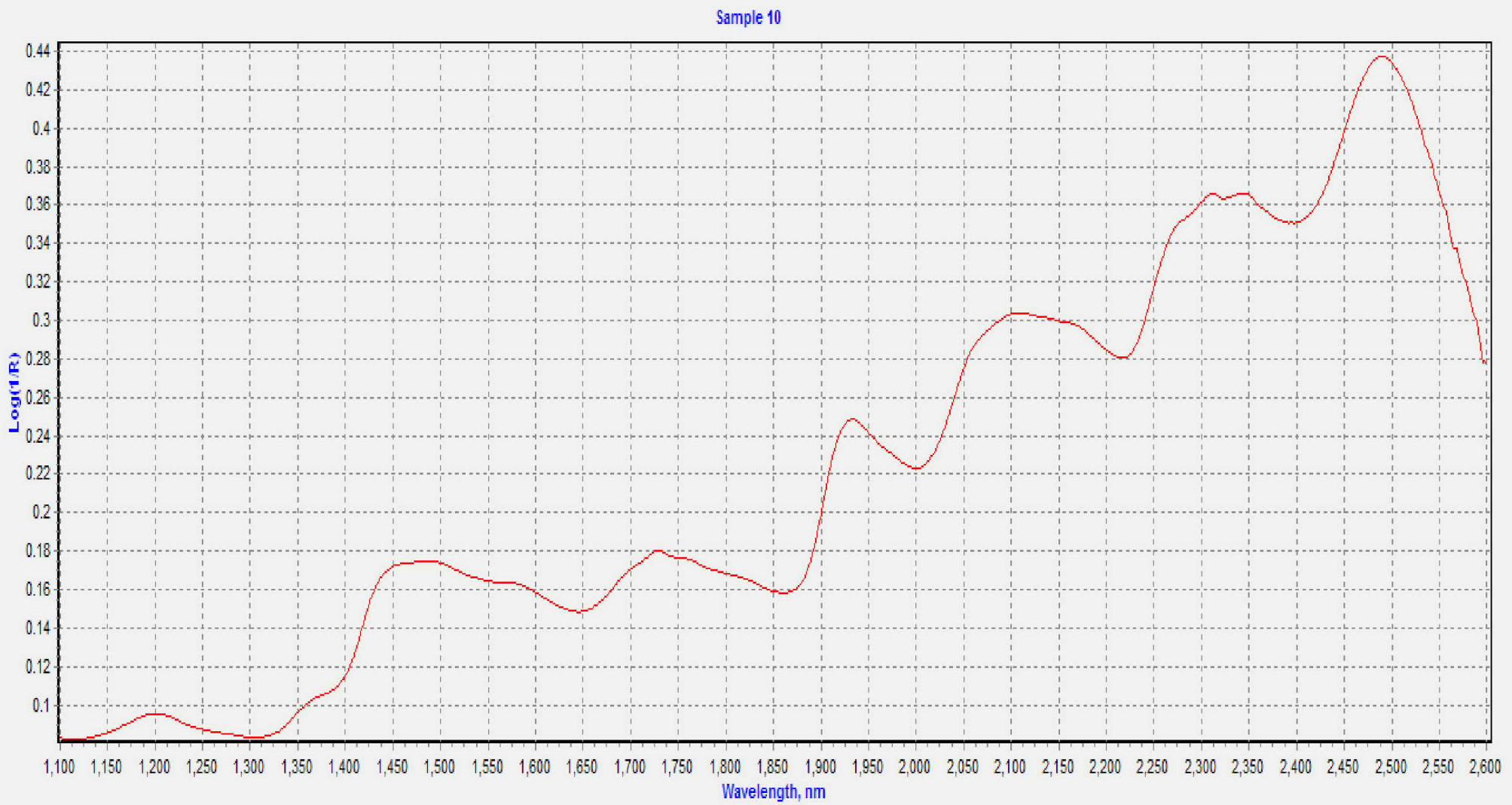


Old



# Hardware Features

- Scans up to 2600nm, 1.0 or 0.5 nm data interval





# Hardware Benefits

- **Best performing system on the market!**
  - Lowest noise, RMS < 20  $\mu$ AU across the entire range
  - RMS < 15  $\mu$ AU from 1100-2500 nm
  - Absolute wavelength accuracy that is best in market
  - Wavelength precision now similar to FT instruments
- Best hardware specs lead to most accurate results
- Quality = Reliable Performance



# Performance Comparison to NIST

Performance specifications based on the same standards measured at sample plane

Parameter	SpectraStar XT	XL	DS2500	Tango
Average Wavelength Difference	0.0151	0.23 nm	0.24 nm	-0.79
Average Absolute Wavelength Difference	0.1877	1.09 nm	0.46 nm	0.95
Wavelength Precision	0.0041	0.23 nm	0.023 nm	0.0004
Average Photometric Difference	0.0010	0.03 Au	0.005 A	-0.220
Average Absolute photometric Difference	0.0011	0.05 Au	0.005 A	0.250
Photometric precision (full scan range)	10.6 $\mu$ RMS	45 $\mu$ RMS	42 $\mu$ RMS	125 $\mu$ RMS

Table 2. Performance comparison of multiple commercial instruments  
(identical tests and samples)

Parameter	SpectraStar 2500XT-R	SpectraStar 2500XL-R	Foss NIRS™ DS2500	Bruker Tango	Büchi NIRFlex N-500
$\lambda_{nm}$ Accuracy <sup>1</sup>	0.015	-0.23	0.36	-0.79	-0.71
$\lambda_{nm}$ Precision <sup>2</sup>	0.005 <sup>1</sup>	0.014	0.023 <sup>2a</sup>	0.000 <sup>2a</sup>	0.048 <sup>2a</sup>
Photo Accuracy <sup>3</sup>	0.001	0.04	-0.005	-0.220	-0.126
Photo Precision <sup>3</sup>	10.6e-6 <sup>4</sup>	35e-5	13.7e-6	125e-6	75.7e-6
Linearity (R <sup>2</sup> ) <sup>2b</sup>	0.980	0.993	0.976	0.991	0.966
Ave. Stray Light <sup>2b</sup>	0.5%	1.3%	1.0%	0.20%	4.5%
Noise 680-2600 <sup>3</sup>	10e-6 <sup>4</sup>	NA	NA	NA	NA
Noise 680-2500 <sup>3</sup>	10e-6 <sup>4</sup>	66e-6	61e-6	NA	NA
Noise 1100-2500 <sup>3</sup>	8e-6 <sup>4</sup>	19e-6	42e-6	518e-6	168e-6
Noise 1500-2500 <sup>3</sup>	8e-6 <sup>4</sup>	13e-6	45e-6	583e-6	135e-6
Noise 2350-2500 <sup>3</sup>	10e-6 <sup>4</sup>	24e-6	57e-6	816e-6	79e-6
S/N 680-2500 <sup>3</sup>	100000	16133	15933	NA	NA
S/N 1100-2500 <sup>3</sup>	125000	52925	22689	1446	5952
S/N 1500-2500 <sup>3</sup>	125000	74254	21618	1285	7407
S/N 2350-2500 <sup>3</sup>	100000	41286	16937	918	12658

<sup>1</sup> (11 Wavelength Standard - SRM 1920a, 10 nm bandwidth),
   
<sup>2a</sup> (2 Wavelength Standard - R99Polystyrene, 10 nm bandwidth),
   
<sup>2b</sup> (Effective stray light for 5 peak heights using Standard - R99Polystyrene),
   
<sup>3</sup> (Reflectance/photometric standard - R99, RMS and S/N are for 3 static replicates),
   
<sup>4</sup> With wavelength range to 2600 nm, static sample.

















# UScan Software

- Completely re-designed software
- Easy, intuitive, and user friendly
- Database driven
  - All spectra and results files are in one place
- New data reporting features
  - Trend charting
  - Customers can build and create customized reports
  - Flexible search and display of results
  - Export spectra as .svf and .nir
- Full, continuous instrument health diagnostics





- Built in diagnostics
  - TAS diagnostics to show and verify performance

TAS Performance Health Check			
Parameter	Value	Pass	Fail
Average Wavelength Difference (nm)	0.0114		
Average Absolute Wavelength Difference (nm)	0.176		
Wavelength Precision (nm)	0.0058		
Average Photometric Difference (Au)	-0.0006		
Average Absolute Photometric Difference (Au)	0.0007		
Photometric Precision (RMS Noise) (Au)	1.492E-5		
			





- Built in diagnostics
  - Instrument health to test hardware function and electronics

Performing Instrument Health Test		
Parameter	Pass	Fail
Lamp and Shutter Function Test	<div></div>	<div></div>
Monochromator Test I (ZOP Alignment)	<div></div>	<div></div>
Monochromator Test II (Motion Control)	<div></div>	<div></div>
Spectrum Signal Quality Test	<div></div>	<div></div>
Electronic Noise Test I (Dark Detector Noise)	<div></div>	<div></div>
Electronic Noise Test II (Light Detector Noise)	<div></div>	<div></div>
Overall Health	<div></div>	<div></div>



- Built in diagnostics
  - Lamp health to show lamp quality and predict when change is needed

Lamp Health Monitoring			
Parameter	Value	Pass	Fail
Hours in Use:	10		
Remaining Hours until Replacement	9990		
Current Lamp Voltage [volts]	4.999	<input checked="" type="radio"/>	<input type="radio"/>
Lamp Spectrum Area Low Channel [counts]	18650249	<input checked="" type="radio"/>	<input type="radio"/>
Lamp Spectrum Area High Channel[counts]	13043542	<input checked="" type="radio"/>	<input type="radio"/>
Lamp Spectrum Peak Low Channel[nm]	1591	<input checked="" type="radio"/>	<input type="radio"/>
Lamp Spectrum Peak High Channel [nm]	1836	<input checked="" type="radio"/>	<input type="radio"/>
			



# Summary

- TAS calibrated for stability and future proof data
- Easy, robust, and low maintenance
- Completely re-designed hardware
- New UScan software
- Best performance on the market





# Idahoan Data Review









# ROI







# Thank You

# Questions?